Chinese troops in the foreign settlement at Canton, and five foreign and about a dozen Chinese gunboats in the river opposite to it: all these for the protection of the foreign residents and their property. The missionaries have left the country districts, and do not expect to be able to return for many months. These things will prevent any botanical work being done in China for some time. I hope something may be done in Formosa in the beginning of next year."

LARGE use is made at the Forth Bridge Works of electricity for lighting purposes. At South Queensferry the workshops are it up by sixteen arc lights, supplemented by a certain number of movable small incandescent lights. Outside twelve large arc lights serve to illuminate the various lines of rails and the approaches to the workshops. The offices, canteen, and other buildings are lighted throughout with Swan incandescent lights of 20-candle power, over 200 being there alone required for the purpose. The staging, which, beginning near the Hawe's Pier, extends for nearly half a mile into the Firth, has, with its approaches, twelve large lights devoted to its illumination. On the island of Inch Garvie in mid channel, four large arc lights are in use outside, and small incandescent lights in the offices and workshops, in the old castle, and in the neighbouring buildings. At North Queensferry six large arc lights serve for the outside illumination, and a number of incandescent lights for that of the interior of the offices and workshops. Nowhere is a dangerous degree of electric pressure allowed; and in all interiors, workshops, or operations under water the limit is but little more than one-half of that permitted by the Board of Trade in their provisional orders for dwellings in towns.

THE mathematical magazine conducted under the name of the *Analyst* for the past ten years, by Mr. J. E. Hendricks, will, we learn from *Science*, be continued under the editorial charge of Ormond Stone, Professor of Astronomy, and William M. Thornton, Professor of Engineering, with the title, *Annals of Mathematics, Pure and Applied*. The numbers will be issued at intervals of two months, beginning February 1, 1884. In scope the journal will embrace the development of new and important theories of mathematics, pure and applied; the solution of useful and interesting problems; the history and bibliography of various branches of mathematics; and critical examinations and reviews of important treatises and text-books on mathematical subjects. The office of publication will be at the University of Virginia.

DR. HOLUB has left England on his expedition to the interior of Africa. He leaves for this journey of a year accompanied by his wife and eleven good servants, including a carpenter, a waggonmaker, a blacksmith, a gunmaker, a tailor, and a butcher, besides his black servant-girl and a dog. In South Africa he will increase his staff by nineteen, and afterwards in Central Africa by forty more black servants.

IT is reported from the Storelvdal, a valley in Central Norway, between 61° and 62° N. lat., that the snow during the night of November 17 became covered with a gray and black layer of dust. No scientific investigation of the phenomenon has as yet been effected.

THE report of the death of Julius Payer, the discoverer with Weyprecht of Franz Josef Land, is, we are glad to say, without any foundation.

THE Annual Report for 1882–83 of the Liverpool Geological Association reports favourably, we are glad to see, on the position and work of that society.

THE Report of the Smithsonian Institution for 1881 shows how admirably that many-sided organisation continues to carry on its invaluable work. The museum in its various departments is constantly increasing; the library will soon be almost without a rival; while a successful chemical laboratory has been added to the other resources of the institute. The appendix, containing as it does a record of progress in all departments of science by specialists, is of great utility; while the special papers on anthropology continue to be a well-known feature of the Report. The Report, like the Institution, reflects the greatest credit on its secretary, Prof. Spencer Baird.

THE additions to the Zoological Society's Gardens during the past week include a Moorhen (*Gallinule chloropus*), British, presented by Mr. T. E. Gunn; two Common Wolves (*Canis lupus* ♂ ♀), European, a Dufresne's Amazon (*Chrysotis dufresniana*) from South-East Brazil; a Bell's Cinixys (*Cinixys belliana*) from West Africa, two Carp (*Cyprinus carpio*) from British fresh waters, purchased; an Indian Gazelle (*Gazella bennetti*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

VARIABLE STARS.—The following are Greenwich times of geocentric minima of *Algol*, during the first quarter of 1884: the later observations of Prof. Julius Schmidt have been brought to bear upon the predictions.

	h.	m.		h.	m.		h.	m
Jan. 10 ...	13	35	Feb. 2 ...	12	9	March 13 ...	15	38
13 ...	10	24	5 ...	8	58	16 ...	12	28
16 ...	7	13	8 ...	5	47	19 ...	9	17
30 ...	15	19	22 ...	13	53			
			25 ...	10	43			
			28 ...	7	32			

According to Mr. Knott's observations of U Cephei, 1881-1883, a minimum is indicated on January 5 at 15h. 21m. G.M.T., the period being 2d. 20h. 48·9m. The ephemeris published in the *Vierteljahrsschrift* gives it 1h. 10m. earlier; but it is not stated upon what elements this rests.

Minima of S Cancri occur on December 31 at 8h. 41m., January 19 at 7h. 57m., February 7 at 7h. 12m., and February 26 at 6h. 28m. G.M.T.

The fine variable R Leonis will be due at maximum on February 23, and *Mira Ceti* on March 11.

THE FIRST COMET OF 1798.—A recalculation of the elements of the orbit of this comet, made by Mr. Hind from Messier's observations on April 12, 13, 14, May 1, 2, 3, and May 20, 21, 22, as they are given in Zach's *Allgemeine Geographische Ephemeriden*, vols. i. and ii., does not lead to any suspicion of ellipticity, which is rather confirmatory of the view taken by Dr. Harzer as to its non-identity with the greatly perturbed comet of Brorsen (1846 III) to which reference was lately made in NATURE. The new orbit is as follows:—

Perihelion passage 1798, April 4·51482 Paris M.T.

	°	′	″	
Longitude of perihelion	105	5	43	Mean Equinox 1798·0
,, ascending node	122	7	22	
Inclination	43	48	1	
Log. perihelion distance	9·6857689			

Motion—direct.

The error in longitude for the second normal is – 19″; the latitudes agree.

THE GREAT COMET OF 1882.—We do not hear that this comet has been recognised since its conjunction with the sun. As was pointed out in this column, it was just possible that it might have been re-observed as the earth somewhat overtook it in its orbit, between the beginning of September and the end of last month. On November 30 the distance was at a minimum of 5·708, and is once more on the increase.

The comet was seen at the Observatory of Cordoba until June 1; the last complete observation for position was made there on May 26, when the distance from the earth was 5·048. There is no parallel to this in the whole history of cometary astronomy, except in the case of the very exceptional comet which was observed in 1729 and 1730; at the time of Cassini's last observation this body was distant from the earth 5·135.

Between the first accurate observation at the Royal Observatory, Cape of Good Hope, on September 7, 1882, and the Cordoba observation above referred to on May 26, 1883, the

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comet described an orbital arc of more than 340°. The ellipse deduced by Kreutz from observations to November 14 assigns a period of 843 years; that by Fabritius, from observations to March 3, one of 823 years; but we may soon hope to see the result of a definitive discussion of the whole series of observations.

THE ANNIVERSARY MEETING OF THE ROYAL SOCIETY

THE Anniversary Meeting of the Royal Society took place as usual on St. Andrew's Day, November 30. when the President, Prof. Huxley, delivered his address; after which the Fellows elected the officers of the Society for the year, whose names we have already given in NATURE, Nov. 8, p. 43. The following is Prof. Huxley's address:—

It will be as much in consonance with your feelings as it is with my own that the first sentences of this address should give utterance to our sense of the calamity which befell us during the recess.

On June 27 our honoured and loved President, William Spottiswoode, fell a victim to that cruel malady, typhoid fever, which is at once the scourge and the reproach of modern civilisation; and we were bereaved of a chief of whom all those who had the highest interests of this Society at heart hoped that he would continue for many a year to discharge the responsible and laborious duties of his office with that broad intelligence, that faithful diligence, that inexhaustible patience and courtesy, which were so characteristic of the man.

Every one of the Fellows of the Society in whose hearing I speak knows that these are no words of conventional eulogy, as of a customary epitaph. But it is only those of us who worked with our late President in the Council, or as officers of the Society, who are in a position fully to appreciate his singular capacity for the transaction of business with clear judgment and rapid decision, and yet with the most conscientious consideration of the views of those with whom he was associated.

And I may add that it is only those who enjoyed Mr. Spottiswoode's intimate friendship, as it was my privilege to do for some quarter of a century, who can know how much was lost when there vanished from among us that rare personality, so commingled of delicate sensitiveness with marvellous self-control, of rigid principle with genial tolerance, of energetic practical activity with untiring benevolence, that it always seemed to me the embodiment of that exquisite ideal of a true gentleman which Geoffry Chaucer drew five hundred years ago:—

> ". . . He lovede chyvalrye,
> Trouthe and honour, fredom and curtesie.
>
> . . . . . .
>
> And though that he was worthy he was wys,
> And of his port as meke as is a mayde.
> He never yit no vilonye ne sayde
> In al his lyf unto no maner wight.
> He was a verray perfight gentil knight."

It is not for me to pass any judgment upon Mr. Spottiswoode's scientific labours; but I have the best authority for saying that having occupied himself with many branches of mathematics, more especially with the higher algebra, including the theory of determinants, with the general calculus of symbols, and with the application of analysis to geometry and mechanics, he did excellent and durable work in all; and that, in virtue of his sound and wide culture, his deep penetration, and the singular elegance with which he habitually treated all his subjects, he occupied a place in the front rank of English mathematicians.

The interment in Westminster Abbey of one who, though compelled to devote a large share of his time to business, was a born man of science, and had won himself so high a place among mathematicians, was doubtless grateful to us as men of science; it could not but be satisfactory to us as Fellows of the Royal Society that, on the rare occasion of the death of our President in office, the general public should show its sympathy with our bereavement; yet as men I think it is good to regard those solemn and pathetic obsequies as the tribute which even our busy, careless, cynical, modern world spontaneously pays to such worth and wisdom, to such large humanity and unspotted purity as were manifested in the "very perfect gentle knight" who so well represented the chivalry of science.

The total number of Fellows deceased during the past year amounts to twenty; a large inroad upon our ranks in mere numbers, an exceptionally severe mortality if we consider the scientific rank of many names in the death-roll. Almost at the same time with Mr. Spottiswoode's untimely death we lost, at the ripe old age of ninety, a very distinguished Fellow and former President of this Society, Sir Edward Sabine. It is said that the average age of Fellows of the Royal Society is greater than that of any body of men in Europe; and it is certainly a remarkable fact that one who so long presided over us in this generation should, as a man of thirty years, have been the contemporary of Sir Joseph Banks, who became our President more than a century ago. And nothing can give a more striking exemplification of the gigantic progress of physical science in modern times than the fact that the discovery of oxygen by Priestley, and that of the composition of water by Cavendish, fall within the period of Sir Joseph Banks's presidency, while Black's work was but a score years earlier. We are as it were but two Presidents off the budding of modern chemistry, as of many another stately growth of the tree of natural knowledge.

Sir Edward Sabine's long services to this Society, first as Treasurer and then as President, deserve more than a passing allusion; but for a due appreciation of them, no less than of his great labours in terrestrial magnetism, I must refer you to our obituary notices.

By the unexpected death of Prof. Henry John Stephen Smith the University of Oxford lost one of the most distinguished, as he was one of the most influential, among those who have guided its destinies during this generation, and a capacity of the first order, not yet weakened by the touch of time, has disappeared from the ranks of the foremost mathematicians of Europe.

As Chairman of the Meteorological Committee, Prof. Smith rendered invaluable services to that body; and we have all a grateful recollection of the readiness with which his knowledge and sagacity were brought to our aid in Council and in Committee.

For the rest, I dare add nothing to that which has been said of him by our late President in that just and loving appreciation of his friend, which is now touched with a sadder gravity and a deeper pathos.

It is difficult to say of Prof. Smith whether he was more remarkable as a man of affairs, of society, of letters, or of science; but it is certain that the scientific facet of his brilliant intelligence was altogether directed towards those intelligible forms which people the most ethereal regions of abstract knowledge. In Sir William Siemens, who but the other day was suddenly snatched from among us, we had a no less marked example of vast energy, large scientific acquirements, and intellectual powers of a high order, no less completely devoted, in the main, to the application of science to industry.

I believe I am expressing the opinion of those most competent to judge, when I say that Sir William Siemens had no superior in fertility and ingenuity of invention; that hardly any living man so thoroughly combined an extensive knowledge of scientific principles with the power of applying them in a commercially successful manner; and that the value of his numerous inventions must be measured, not merely by the extent to which they have increased the wealth and convenience of mankind, but by the favourable reaction on the progress of pure science which they, like all such inventions, have exerted, and will continually exert.

Time permits me to be but brief in alluding to the remainder of our long list of deaths. But I may not omit to mention that we have lost a distinguished mathematician in Prof. Challis; in Mr. James Young, a chemist whose skilful application of theory to practice founded a new industry; in Mr. Cromwell Varley, an ingenious inventor; in Lord Talbot de Malahide, a warm friend of science and a zealous promoter of archæological research; in Mr. Walker, an eminent engineer; in Mr. Howard, an eminent quinologist; and in the Rev. Dr. Stebbing, an accomplished and amiable man of letters, who for very many years filled the honourable, but not very onerous, office of Chaplain to the Society.

And it would ill become us, intimately connected as this Society always has been, and I hope always will be, with the sciences upon which medicine bases itself, to leave unnoticed the decease of the very type of a philosophical physician, the venerable Sir Thomas Watson.

Two well-known names have disappeared from among those of the eminent men who are enrolled upon our foreign list; the eminent physicist, Plateau, and the no less distinguished anatomist and embryologist, Bischoff.

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